Dearbhú Cáilíochta agus Cáilíochtaí Éireann
Quality and Qualifications Ireland

Component Specification

Renewable Technologies

NFQ Level 6

6N0974

1. Component Details

Title	Renewable Technologies
Teideal as Gaeilge	Teicneolaíochtaí In-athnuaite
Award Class	Minor
Code	6N0974
Level	6
Credit Value	15
Purpose	The purpose of this award is to equip the learner with the relevant knowledge, skill and competence to evaluate and recommend renewable or alternative energy options for industrial and commercial premises.
Learning Outcomes	Learners will be able to:
	1 Analyse a range of different renewable technologies to include biomass, heat pumps, solar thermal combined heat & power, wind turbine taking account of their specifications, components and applications, including the advantages and disadvantages of each type of system and their possible integration with each other
	2 Research the planning requirements for each type of renewable system installation
	3 Evaluate a range of industrial building fabric construction and sustainability implications

4 Demonstrate a knowledge of current national policies, strategies and legislation in relation to renewable technology application

5 Compare each type of renewable technology to include assessing, sizing, calculating payback costs and carbon dioxide emissions

6 Assess total building energy demand

7 Assess available technologies for electrical production in buildings, their integration with other renewable technologies and the implications of exporting excess power to the national grid

8 Estimate the integration costs of introducing renewable technologies into an existing energy or power system

9 Generate design plans and layout for the introduction of a renewable technology

10 Formulate a renewable energy feasibility assessment and study

11 Manage a renewable energy project including planning, installation, commissioning and aftercare

12 Evaluate the application of a renewable energy system to include predetermined targets and specifications

Assessment

General Information

Details of FET assessment requirements are set out in Assessment Guidelines for Providers.

All FET assessment is criterion referenced. Successful achievement of the award is based on learners attaining the required standards of knowledge, skill or competence.

The techniques set out below are considered the optimum approach to assessment for this component. In exceptional circumstances providers may identify alternative assessment techniques through the provider's application for programme validation which are **reliable** and **valid** but which are more appropriate to their context.

Assessment of a number of components may be integrated across programmes for delivery, provided that the learning outcomes of each minor award are assessed.

Group or team work may form part of the assessment, provided each learner's achievement is separately assessed.

All providers are required to submit an assessment plan as part of their application for programme validation. Assessment Plans will include information relating to scheduling and integration of assessment. See current FET validation guidelines at www.qqi.ie.

Assessment Techniques

In order to demonstrate that they have reached the standards of knowledge, skill and competence identified in all the learning outcomes, learners are required to complete the assessment(s) below.

The assessor is responsible for devising assessment instruments (e.g. project and assignment briefs, examination papers), assessment criteria and mark sheets, consistent with the techniques identified below and FETAC's assessment requirements.

Programme validation will require providers to map each learning outcome to its associated assessment technique. See current FET validation guidelines at www.qqi.ie.

All learning outcomes **must** be assessed and achieved

Assignment	60%
Project	40%

Description

Assignment

An assignment is an exercise carried out in response to a brief with specific guidelines as to what should be included. An assignment is usually of short duration and may be carried out over a specified period of time.

Project

A project is a response to a brief devised by the assessor. A project is usually carried out over an extended period of time. Projects may involve research, require investigation of a topic, issue or problem or may involve process such as a design task, a performance or practical activity or production of an artefact or event.

Recognition of Prior Learning (RPL)

Learners may be assessed on the basis of their prior knowledge and experience. Providers must be specifically quality assured

	to assess learners by this means. To do so they must complete B10, see Provider's Quality Assurance Guidelines and be included on the Register of RPL approved providers. See RPL Guidelines at www.fetac.ie for further information and registration details.
Grading	Pass 50% - 64% Merit 65% - 79% Distinction 80% - 100%
Specific Validation Requirements	There are no specific validation requirements for this award
Supporting Documentation	1. SEI's Building Energy Manual/Resources Guide 2. Kyoto Protocol Targets and Performance for Ireland 3. National Climate Change Strategy 2007 and 2012 4. Energy White Paper 2007 and 2020 5. Energy Programme 2007 and 2013 6. Programme for Government 2007 7. Energy Efficiency Action Plan 2007 and 2020 8. National Bioenergy Plan 9. Energy Performance of Building Regulations 2006 10. Building Regulations Part and 2008 11. Irish Energy Management Systems IS 393 12. Building Irelands Smart Economy
Access	To access programmes leading to this award the learner should have reached the standards of knowledge, skill and competence associated with the preceding level of the National Framework of Qualifications. This may have been achieved through a formal qualification or through relevant life and work experience.
Transfer	Successful completion of this component award enables the learner to transfer to programmes leading to other certificates where this component is a mandatory or an elective requirement.

2. FET Award Standards

QQI award standards are determined within the National Framework of Qualifications (NFQ), http://www.nfq-qqi.com. QQI determines standards for the education and training awards that it makes itself and that are made by providers to whom it has delegated authority to make an award. Providers offering programmes leading to QQI awards **must** have their programme(s) validated in accordance with current validation policy (see www.qqi.ie).

Award standards are designed to be consistent with the NFQ's award classes i.e. major, special purpose, supplemental and minor awards. They are expressed in terms of **learning outcomes** i.e. concise statements of what the learner is expected to know or be able to do in order to achieve a particular award. Learning outcomes for FET awards are contained within the associated specifications:

AWARD CLASS	STANDARDS	AWARDS
Major Award	Certificate Specification	Certificate (Levels 1 to 5) Advanced Certificate (Level 6)
Supplemental Award	Supplemental Specification	Supplemental Certificate (Level 3 to 6)
Special Purpose	Specific Purpose Specification	Specific Purpose Certificate (Levels 3 to 6)
Minor Award	Component Specification	Component Certificate (Levels 1 to 6)

Award standards are thresholds, they describe standards of knowledge, skill or competence to be acquired, and where appropriate, demonstrated, by a learner before an award may be made.

Award standards will be reviewed from time to time as necessary. Minor changes may be made by the QQI executive outside the review cycle where necessary. Changes to standards are published on QQI's website. Providers with validated programmes and providers with delegated authority to make awards are responsible for monitoring relevant standards and making necessary responses to changes.

3. FET Credit

Every FET certificate and component specification includes an FET credit value (Table 1). FET credit is quantified in multiples of 5 FET credits (up to 50 hours of learner effort). Learner effort is based on the time taken by typical learners at the level of the award to achieve the learning outcomes for the award. It includes all learning time involved including: guided learning hours, self-directed learning and assessment.

Table 1: FET Credit Values

NFQ Level	Major Awards Credit Values	Default Credit Values Minor Awards	Other Permitted Minor Award Credit Values	Special Purpose and Supplemental Award Credit Value Ranges
1	20	5	10	
2	30	5	10	
3	60	10	5,20	>5 and<60
4	90	10	5,15,20	>5 and<90
5	120	15	5,10,30	>5 and <120
6	120	15	5,10,30	>5 and <120

Guide to Level

Learning outcomes at this level include a comprehensive range of skills which may be vocationally-specific and/or of a general supervisory nature, and require detailed theoretical understanding. The outcomes also provide for a particular focus on learning skills. The outcomes relate to working in a generally autonomous way to assume design and/or management and/or administrative responsibilities. Occupations at this level would include higher craft, junior technician and supervisor.

Strand	Sub-strand	Nature of learning
Knowledge	Breadth	Specialised knowledge of a broad area
	Kind	Some theoretical concepts and abstract thinking, with significant underpinning theory
Know How & Skill	Range	Demonstrate a comprehensive range of specialised skills and tools
	Selectivity	Formulate responses to well defined abstract problems
Competence	Context	Act in a range of varied and specific contexts involving creative and non-routine activities; transfer and apply theoretical concepts and/or technical or creative skills to a range of contexts
	Role	Exercise substantial personal autonomy and often take responsibility for the work of others and/or for the allocation of resources; form and function within, multiple and complex heterogeneous groups.
	Learning to Learn	Learn to evaluate own learning and identify needs within a structured learning environment; assist others in identifying learning needs
	Insight	Express an internalised, personal world view, reflecting engagement with others.

Extract from 'Determinations for the Outline National Framework of Qualifications': NQAI